

REMARKS

Claims 1-22 are pending at the time of the Office Action. In the Office Action transmitted on August 14, 2007, the Examiner took the following action: (1) objected to the Abstract; (2) rejected Claim 8 under 35 U.S.C. §112, second paragraph, as being indefinite; (3) rejected Claims 1-22 under 35 U.S.C. §103(a) as being unpatentable over Alber (U.S. 2004/0120783) in view of Vierstraete (U.S. 4,304,512). Applicants amend Claims 1 and 8. Applicants respectfully request reconsideration of the application in view of the foregoing amendments and the following remarks.

I. Objection to the Specification

The Abstract is objected to as having improper language format. Applicants have amended the Abstract to recite “an” instead of “the present invention is directed to.” Accordingly, applicants respectfully request reconsideration and withdrawal of this objection.

II. Rejections under 35 U.S.C. §112

Claim 8 is rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctively claim the subject matter which applicants regard as the invention.. Applicants have amended Claim 8 to recite “polytetrafluoroethylene” instead of “Teflon®.” Accordingly, applicants respectfully request reconsideration and withdrawal of this rejection.

III. Rejections under 35 U.S.C. §103(a)

Claims 1-22 are rejected under 25 U.S.C. §103(a) as being unpatentable over Alber in view of Vierstraete. Claims 2-22 depend from Claim 1. Claim 1 recites:

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1. A clamp for securing a work piece during a manufacturing operation, comprising:
 - a support arranged to at least partially surround a circumference defining a work area on the work piece, the support having a first end movable relative to a surface of the work piece; and
 - at least one rotatable friction reducing element disposed between the first end and the work piece, the at least one rotatable friction reducing element configured to at least partially surround the work area and apply a clamping pressure to the surface when the clamp is engaged with the work piece and moved across the work piece, wherein the at least one rotatable friction reducing element is at least partially supported at the first end by one of a fluid pressure or a gas pressure that facilitates a rotation of the friction reducing element on the surface of the work piece.

Applicants respectfully traverse the rejections. Specifically, Alber does not teach or suggest, “at least one rotatable friction reducing element disposed between *the first end* and *the work piece*,” as recited in Claim 1. Instead, the cited disclosure of Alber illustrates “a *pincer clamping system* as an interface between *a rotating tool or work piece support system* and a *machine tool spindle*...” (Paragraph 57, Lines 1-5; Figure 3). In other words, the clamping system illustrated in Figure 3 is an interface for (1) a rotating tool and machine tool spindle, or (2) a work piece *support system* and a machine tool spindle. Thus, components of the pincer clamping system of Alber are not disposed between a support and a work piece, as is presently claimed.

Second, Alber does not teach or suggest, “wherein the at least one rotatable friction reducing element is at least partially supported at the first end by one of a *fluid pressure* or a *gas pressure* that facilitates a *rotation of the friction reducing element on the surface*,” as recited in Claim 1. (Emphasis added). Instead, Alber discloses that its clamping system uses a “lubricant layer system” made up of a layer of “solid lubricant,” such as MoS₂ and polytetrafluoroethylene (PTFE). (Paragraph 23, Lines 1-5).

Furthermore, Alber also discloses that its “lubricant layer system” is used for “clamping

systems for rotating tool or workpiece support systems and for clamping systems for stationary tool or workpiece support systems.” (Paragraph 24, Lines 1-6). However, such uses do not teach or suggest the use of a lubrication system that facilitates the rotation of a friction reducing element on the surface of a work piece.

Third, the deficiencies of Alber, relative to the rejected claims, are also not remedied by Vierstraete. Vierstraete does not disclose a friction element that is supported by fluid or gas pressure. Instead, Vierstraete discloses a “milling cutter” equipped with rollers mounted on a pair of rods extending from a ring disposed around the milling cutter:

This ring 10 is integral with at least two *posts* 17, of outer square section, located at an angle of 180 degree. from each other and on an axis 18 passing through the axis of rotation 16 and perpendicular to the latter, *these two posts are bored out in order to receive two rods 19 with shoulders, bearing on compression washers 20 limited in their lower travel by the circlip 42, each perpendicular extension of these two rod receives, on the axis 41, a roller 21* through the intermediary of bearings 22 retained by circlips 23, the alignment, with respect to the axis 18, of these compression blocks is ensured by two plates 24, 25, each secured by screws 26 to the two posts 17. (Vierstraete, Column 2, Lines 42-54; Figure 1) (Emphasis added).

In other words, Vierstraete discloses rollers 21 (friction reducing elements) that are supported by and rotate about a shaft, and not supported by fluid or gas pressure.

Moreover, Vierstraete’s disclosure regarding a “self-lubricating nut 11” also does not remedy the deficiencies of Alber. As shown in Figure 1, the “self-lubricating nut 11” is not a friction reduction device that rotates on the surface of a part being machined. (Figure 1). Rather, it engages a ring 10 of the “milling cutter.” (Column 2, Lines 34-41). Further, the hydraulics or pneumatics disclosed by Vierstraete does not provide fluid or gas pressure that facilitates *a rotation of the friction reducing element on the surface,*” as recited in Claim 1. Instead, Vierstraete discloses that the hydraulics or pneumatics work on the compression blocks, which calibrate the pressure on the parts being machined. (Column 3, Lines 40-48).

Thus, Vierstraete also does not teach or suggest, “wherein the at least one rotatable

friction reducing element is at least partially supported at the first end by one of a *fluid pressure* or a *gas pressure* that facilitates *a rotation of the friction reducing element on the surface*,” as recited in Claim 1. (Emphasis added). Accordingly, the cited references to Alber and Vierstraete, whether individually or in combination, do not teach, disclose or fairly suggest the clamp recited in Claim 1.

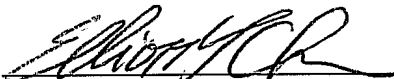
Furthermore, since Claims 2-22 depend from Claim 1, they are at least allowable for the same reason that makes Claim 1 allowable over the cited references, as well as for additional limitations recited.

CONCLUSION

For the foregoing reasons, Applicants respectfully submit that the pending Claims 1-22 are now in condition for allowance. If there are any remaining matters that may be handled by telephone conference, the Examiner is kindly invited to contact the undersigned attorney at the telephone number listed below.

Respectfully Submitted,

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By: 
Elliott Y. Chen
Lee & Hayes, PLLC
Reg. No. 58,293
(206) 315-7914

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